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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/689,151

10/20/2003

Sumeet Sandhu

114367-150286

6395

31817 7590 05/15/2008
SCHWABE, WILLIAMSON & WYATT, P.C.
PACWEST CENTER, SUITE 1900
1211 S.W. FIFTH AVE.
PORTLAND, OR 97204

EXAMINER

ADDY, THJUAN KNOWLIN

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

05/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/689,151	Applicant(s) SANDHU, SUMEET	
	Examiner THJUAN K. ADDY	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-11,15-19,21-25 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-11,15-19,21-25 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on March 12, 2008 has been entered. Claims 1, 7, 15, 21, and 29 have been amended. Claims 6, 12-14, 20, and 26-28 have been cancelled. No claims have been added. Claims 1-5, 7-11, 15-19, 21-25, and 29-31 are still pending in this application, with claims 1, 7, 15, 21, and 29 being independent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7-11, 15-19, 21-25, and 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Lu et al. (US Patent Application, Pub. No.: US 2007/0054632 A1).

3. In regards to claims 1 and 15, Lu discloses a method and article, comprising: operating in a multiple input, multiple output (MIMO) mode (e.g., MIMO) by a transmitter device of a wireless network (See Fig. 5 and wireless network 90) to communicate with a receiver device of the wireless network, the wireless network including at least one

transmitter device and a plurality of receiver devices (See Fig. 5 and antennas 110); observing both physical (PHY) layer (See Fig. 5 and PHY layer 108) performance of the receiver device and media access control (MAC) layer (See Fig. 5 and MAC layer 106) performance of the transmitter device during said MIMO mode of operation; and the transmitter device based at least on the observations switching from operating in the MIMO mode to operating in a spatial division, multiple access mode (e.g., single input single output [SISO]) to communicate with the plurality of receiver devices including the receiver device, when poor MAC layer performance below a MAC layer performance threshold is observed for the transmitter device during the MIMO mode of operation of the transmitter device, even though good PHY layer performance above a PHY layer performance threshold is observed for the receiver device during the MIMO mode of operation of the transmitter device (See pg. 1, paragraph [0004]; pg. 3, paragraph [0032]; and pg. 4, paragraph [0036] – [0037]).

4. In regards to claims 2, 11, 16, 25, and 30, Lu discloses a method, article, and apparatus, wherein said observing includes observing a latency value of said MAC layer, and said switching is based at least in part on whether the observed latency value of said MAC layer exceeds a threshold value or not (See pg. 4, paragraph [0036] – [0037]).

5. In regards to claims 3, 10, 17, and 24, Lu discloses a method and article, wherein said observing includes observing a throughput value of said MAC layer, and said switching is based at least in part on whether the observed throughput value is below a threshold value or not (See pg. 4, paragraph [0036] – [0037]).

6. In regards to claims 4, 8, 18, and 22, Lu discloses a method and article, wherein said observing includes observing a bit error rate of said PHY layer, and said switching occurring even though observing a bit error rate of said PHY layer that is below a threshold value indicating good PHY layer performance (See pg. 5, paragraph [0044] and pg. 6, paragraph [0052] – [0053]).

7. In regards to claims 5, 9, 19, 23, and 31, Lu discloses a method and article, wherein said observing includes observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer, and said switching occurring even though observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer that is above a threshold value indicating good PHY layer performance (See pg. 5, paragraph [0044] and pg. 6, paragraph [0052] – [0053]).

8. In regards to claims 7 and 21, Lu discloses a method and article, comprising: operating in a spatial division, multiple access mode (e.g., single input single output [SISO]) by a wireless transmitter device of a wireless network (See Fig. 5 and wireless network 90), to communicate with a receiver device of plurality of receiver devices (See Fig. 5 and antennas 110) of the wireless network, the wireless network including at least one transmitter device and the plurality of receiver devices; observing both physical (PHY) layer (See Fig. 5 and PHY layer 108) performance of the receiver device and media access control (MAC) layer (See Fig. 5 and MAC layer 106) performance of the transmitter device during said SDMA (e.g., SISO) mode of operation; and the transmitter device based at least on the observations switching from operating in the SDMA (e.g., SISO) mode to operating in a multiple input, multiple output (MIMO) mode

(e.g., MIMO) to communicate with the receiver device, when poor PHY layer performance below PHY layer performance threshold is observed for the receiver device during the SDMA (e.g., SISO) mode of operation of the transmitter device, even though good MAC layer performance above a MAC layer performance threshold is observed for the transmitter device during the SDMA (e.g., SISO) mode of operation of the transmitter device (See pg. 1, paragraph [0004]; pg. 3, paragraph [0032]; and pg. 4, paragraph [0036] – [0037]).

9. In regards to claim 29, Lu discloses an apparatus, comprising: a transceiver to receive signals from a receiver device of a wireless network (See Fig. 5 and wireless network 90), the wireless network including at least a transmitter device and a plurality of receiver devices (See Fig. 5 and antennas 110), the apparatus being a transmitter device of the wireless network and the receiver device being one of the plurality of receiver devices of the wireless network; at least a part of one of the receiver devices; at least two or more omnidirectional antennas to couple to said transceiver; and a baseband processor to couple to said transceiver, wherein said baseband processor and said transceiver to observe both physical (PHY) layer (See Fig. 5 and PHY layer 108) performance of the receiver device and media access control (MAC) layer (See Fig. 5 and MAC layer 106) performance of the apparatus, to switch from a multiple input, multiple output (MIMO) mode (e.g., MIMO) to a spatial division, multiple access (SDMA) mode (e.g., single input single output [SISO]) under a first condition, and to switch from a SDMA mode (e.g., SISO) to a MIMO mode (e.g., MIMO) under a second condition, the first condition includes observing poor MAC layer performance for the

transmitter device below a MAC layer performance threshold when the transmitter device is operating in MIMO mode (e.g., MIMO) and even though good PHY layer performance above a PHY layer performance threshold is observed for the receiver device during the MIMO mode (e.g., MIMO) of operation of the transmitter (See pg. 1, paragraph [0004]; pg. 3, paragraph [0032]; and pg. 4, paragraph [0036] – [0037]) , and the second condition includes observing poor PHY layer performance for the receiver device below a PHY layer performance threshold when the transmitter device is operating in SDMA mode (e.g., SISO) and even though good MAC layer performance above a MAC layer performance threshold is observed for the transmitter device during the SDMA mode (e.g., SISO) of operation of the transmitter (See pg. 5, paragraph [0044] and pg. 6, paragraph [0052] – [0053]).

Response to Arguments

10. Applicant's arguments with respect to claims 1-5, 7-11, 15-19, 21-25, and 29-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lu et al. (US 7,224,704) teach a wireless network scheduling data frames including physical layer configuration. Lu et al. (US Patent Application, Pub. No.: US 2003/0185241 A1) teach a wireless network scheduling data frames including physical layer configuration. Proctor, JR. et al. (US Patent Application, Pub.

No.: US 2006/018342 A1) teach a physical layer repeater with selective use of higher layer functions based on network operating conditions. Liu et al. (US 7,295,827) teach mobile station dynamic power saving control.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

13. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THJUAN K. ADDY whose telephone number is (571)272-7486. The examiner can normally be reached on Mon-Fri 8:30-5:00pm.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2614

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thjuan K. Addy/
Primary Examiner, Art Unit 2614